

BUTTERFLY VALVE



It is a type of valve consisting of a disc travelling 90 degrees on shaft inside of a circular body. It is a type which needs less installation space and which is light in weight and cheap in cost compared to other types of valves.

Even it is fully open, disc is located on flow path. This is the reason why it cannot be used in sewage media, but can be used only in clean water.

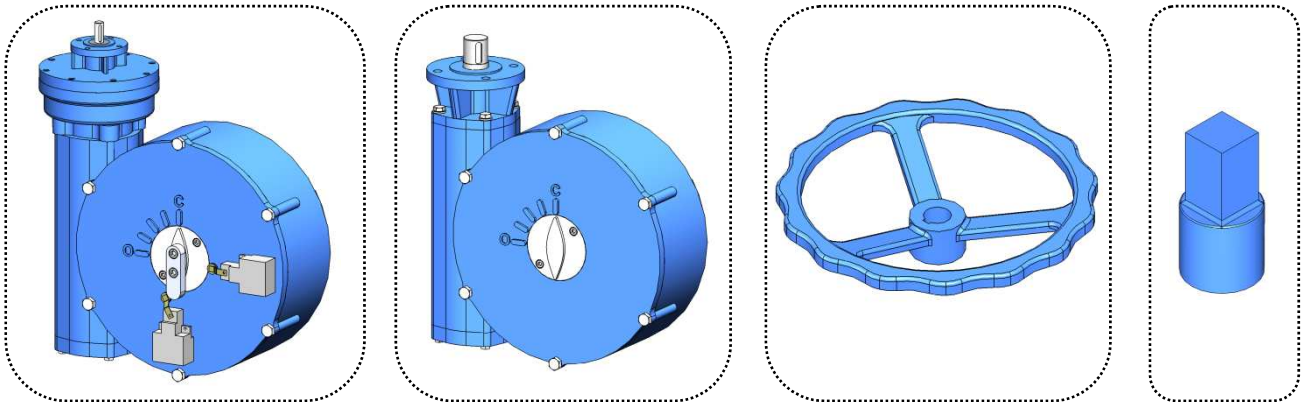
Disc of butterfly valve is operated by means of a gearbox.

Butterfly valve should be used as isolation valve for performing on-off duty. It must not be used for throttling purpose. Velocity of flow is increased; cavitations and water jets begin to take place while disc is approaching to fully closed position. Internal components of valve, especially disc ring, are damaged.

For throttling duty, regulating duty and for high line pressures such as more than PN25, needle valve should be used.

Installation Position, Any position is applicable as long as shaft of valve is horizontal.

Accessories, Gearbox, Product Code, TK



The accessory which operates valve is the gearbox. Worm gear-helical gear design is applied. Since disc of valve travels 90 degrees, gearbox is designed and produced to allow that travel. There is an adjustable item inside the gearbox for limit stops at “fully open” and “fully closed” positions of valve. Position indicator on the gearbox shows the opening degree of disc.

For operating butterfly valves up to and including DN 500 PN 16, worm gear-helical gear system is capable on its own.

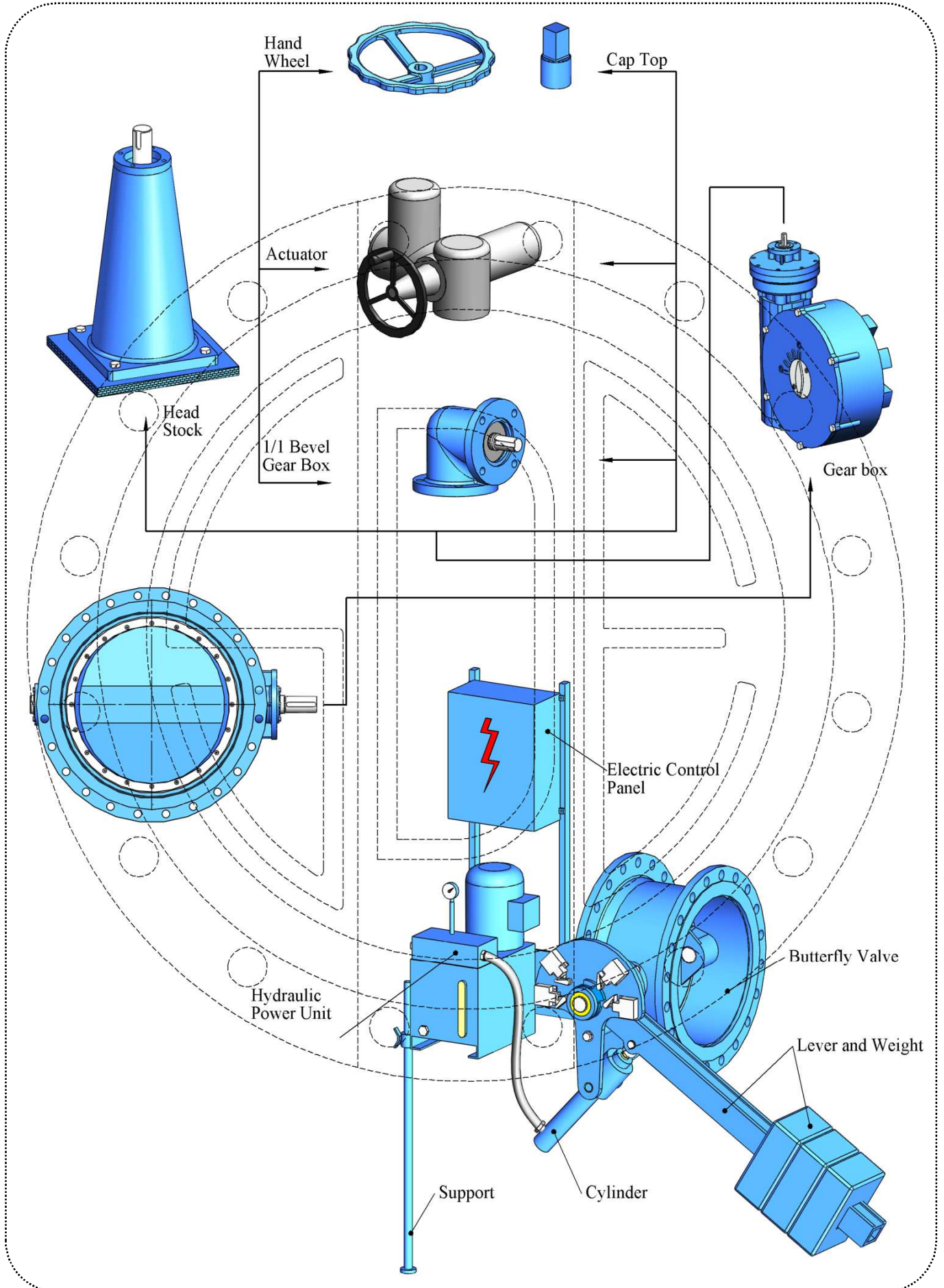
For valves including DN 600 PN 16 and greater, planet gear system is fixed on TK gearbox for easy operation.

You can refer to our gearbox information pages for further information.

Maintenance,

No maintenance is needed for a valve which is used in clean water except lubricating gear unit. If valve is uninstalled, it is recommended to check disc ring (rubber ring), o-rings and change if necessary.

ACCESSORIES OF BUTTERFLY VALVE

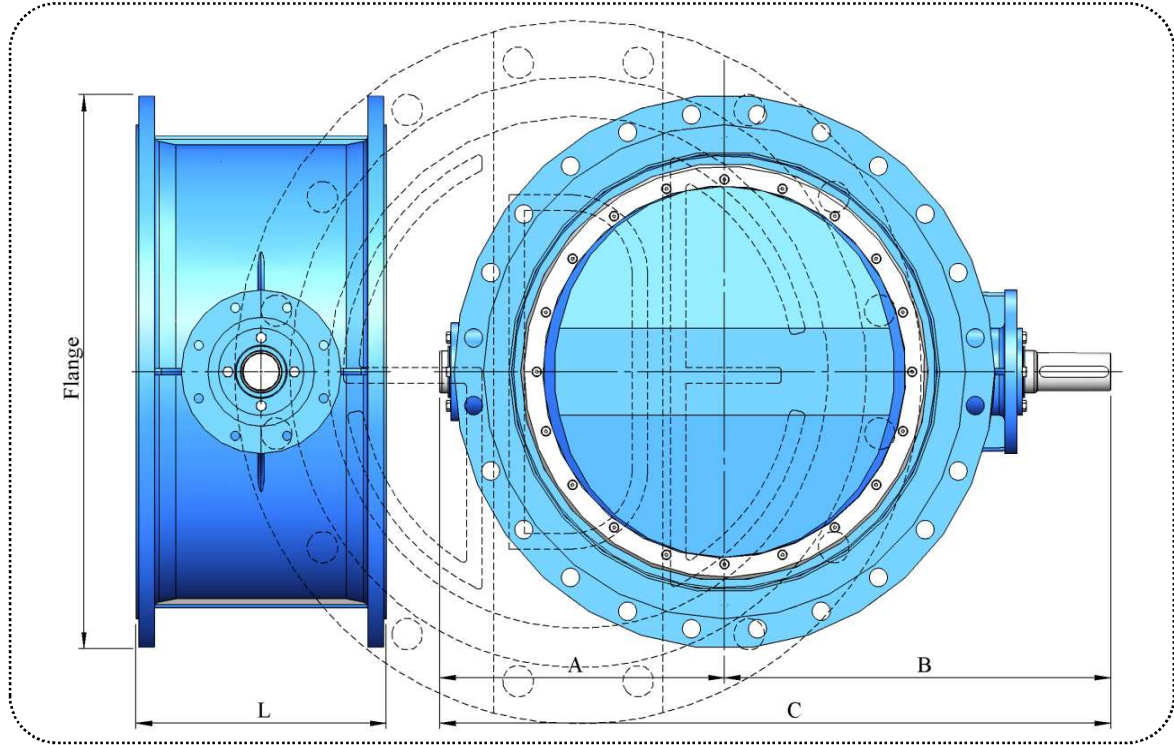


BUTTERFLY VALVE BARE SHAFT

Body Length Standard : EN 558-1, S 13

Valve Standard : EN 593

Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.



DIMENSIONS

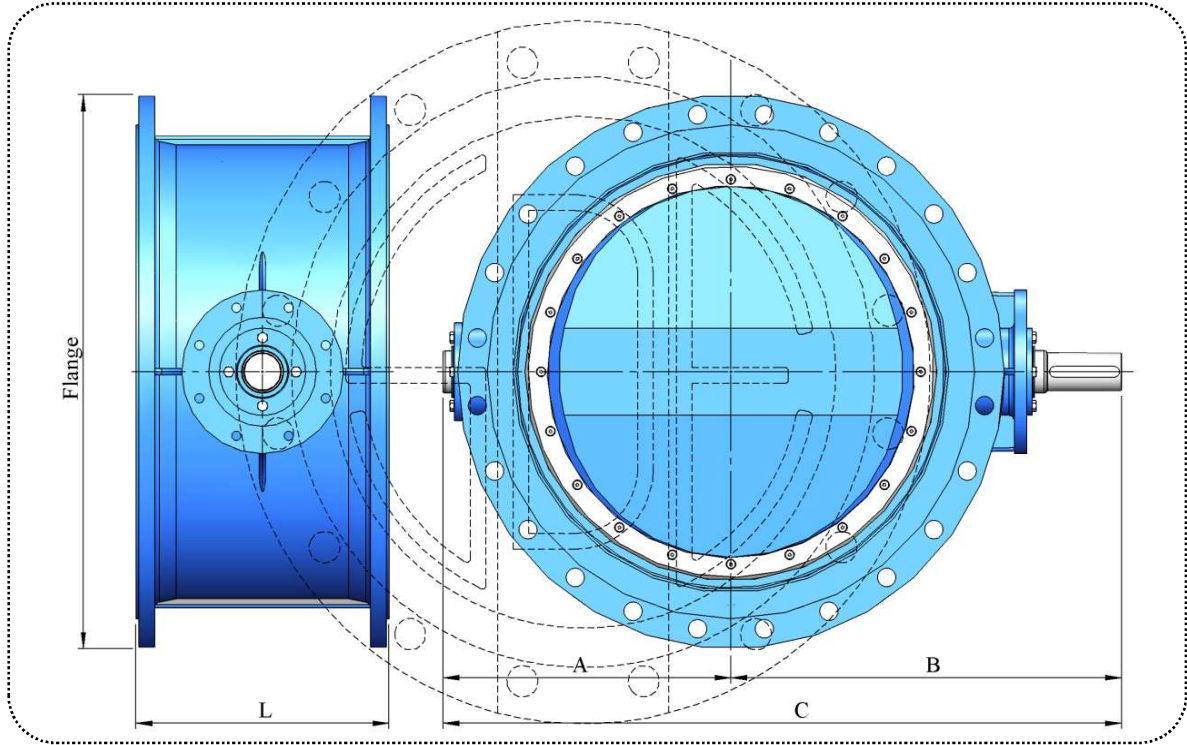
DN	L	PN 10				PN 16			
		A	B	C	Kg	A	B	C	Kg
200	152	170	305	475	48	170	305	475	50
250	165	198	333	530	73	203	338	540	75
300	178	223	368	590	98	230	375	605	101
350	190	253	408	660	121	260	415	675	126
400	216	283	458	740	168	290	465	755	175
450	222	308	503	810	212	320	515	835	223
500	229	335	530	865	241	358	553	910	265
550	248	363	558	920	275	389	604	993	327
600	267	390	585	975	305	420	635	1.055	369
650	280	419	634	1.053	371	438	673	1.110	445
700	292	448	663	1.110	425	455	690	1.145	505
750	305	483	718	1.200	512	485	740	1.225	593
800	318	508	743	1.250	603	513	768	1.280	685
900	330	558	833	1.390	823	563	858	1.420	923
1.000	410	615	890	1.505	1.036	628	923	1.550	1.228
1.050	440	643	938	1.581	1.195	653	988	1.640	1.413
1.100	440	671	966	1.638	1.359	678	1.013	1.690	1.602
1.200	470	728	1.023	1.750	1.351	743	1.098	1.840	1.624
1.300	510	788	1.103	1.890	1.698	793	1.168	1.960	2.028
1.400	530	838	1.173	2.010	2.014	843	1.218	2.060	2.365
1.500	575	893	1.248	2.140	2.499	910	1.305	2.215	2.935
1.600	600	958	1.333	2.290	3.049	965	1.400	2.365	3.612
1.700	635	1.008	1.443	2.450	3.813				
1.800	670	1.058	1.493	2.550	4.600				
1.900	715	1.110	1.585	2.695	5.696				
2.000	760	1.163	1.638	2.800	6.915				
2.100	805	1.219	1.734	2.953	8.529				
2.200	850	1.275	1.790	3.065	10.358				

BUTTERFLY VALVE BARE SHAFT

Body Length Standard : EN 558-1, S 14

Valve Standard : EN 593

Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.



DIMENSIONS

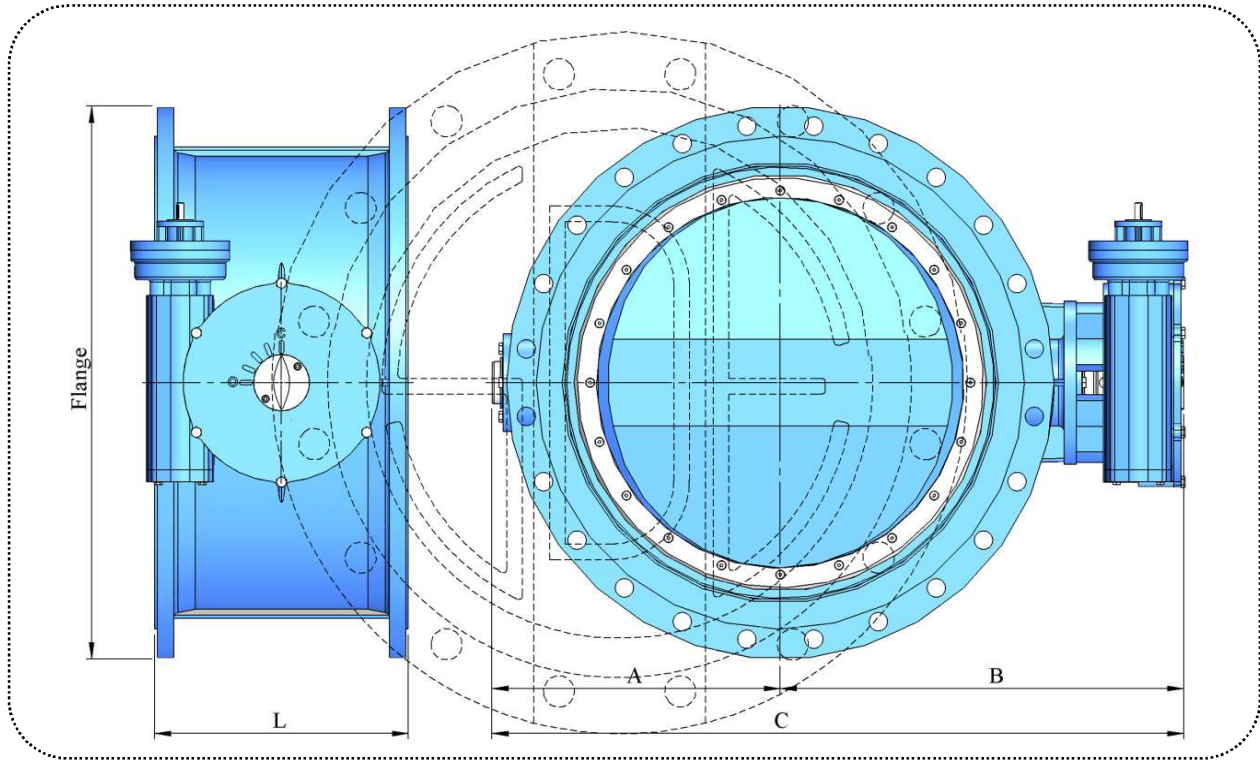
DN	L	PN 10				PN 16			
		A	B	C	Kg	A	B	C	Kg
200	230	170	305	475	51	170	305	475	52
250	250	198	333	530	77	203	338	540	79
300	270	223	368	590	103	230	375	605	107
350	290	253	408	660	127	260	415	675	132
400	310	283	458	740	175	290	465	755	182
450	330	308	503	810	222	320	515	835	232
500	350	335	530	865	252	358	553	910	277
550	370	363	558	920	287	389	604	993	340
600	390	390	585	975	318	420	635	1.055	384
650	410	419	634	1.053	386	438	673	1.110	463
700	430	448	663	1.110	442	455	690	1.145	525
750	450	483	718	1.200	532	485	740	1.225	616
800	470	508	743	1.250	626	513	768	1.280	710
900	510	558	833	1.390	857	563	858	1.420	959
1.000	550	615	890	1.505	1.064	628	923	1.550	1.262
1.050	570	643	938	1.581	1.224	653	988	1.640	1.447
1.100	590	671	966	1.638	1.397	678	1.013	1.690	1.646
1.200	630	728	1.023	1.750	1.562	743	1.098	1.840	1.867
1.300	670	788	1.103	1.890	1.948	793	1.168	1.960	2.317
1.400	710	838	1.173	2.010	2.335	843	1.218	2.060	2.736
1.500	750	893	1.248	2.140	2.847	910	1.305	2.215	3.337
1.600	790	958	1.333	2.290	3.471	965	1.400	2.365	4.100
1.700	830	1.008	1.443	2.450	4.296				
1.800	870	1.058	1.493	2.550	5.154				
1.900	910	1.110	1.585	2.695	6.301				
2.000	950	1.163	1.638	2.800	7.575				
2.100	990	1.219	1.734	2.953	9.249				
2.200	1.030	1.275	1.790	3.065	11.144				

BUTTERFLY VALVE

Body Length Standard : EN 558-1, S 13

Valve Standard : EN 593

Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.



DIMENSIONS

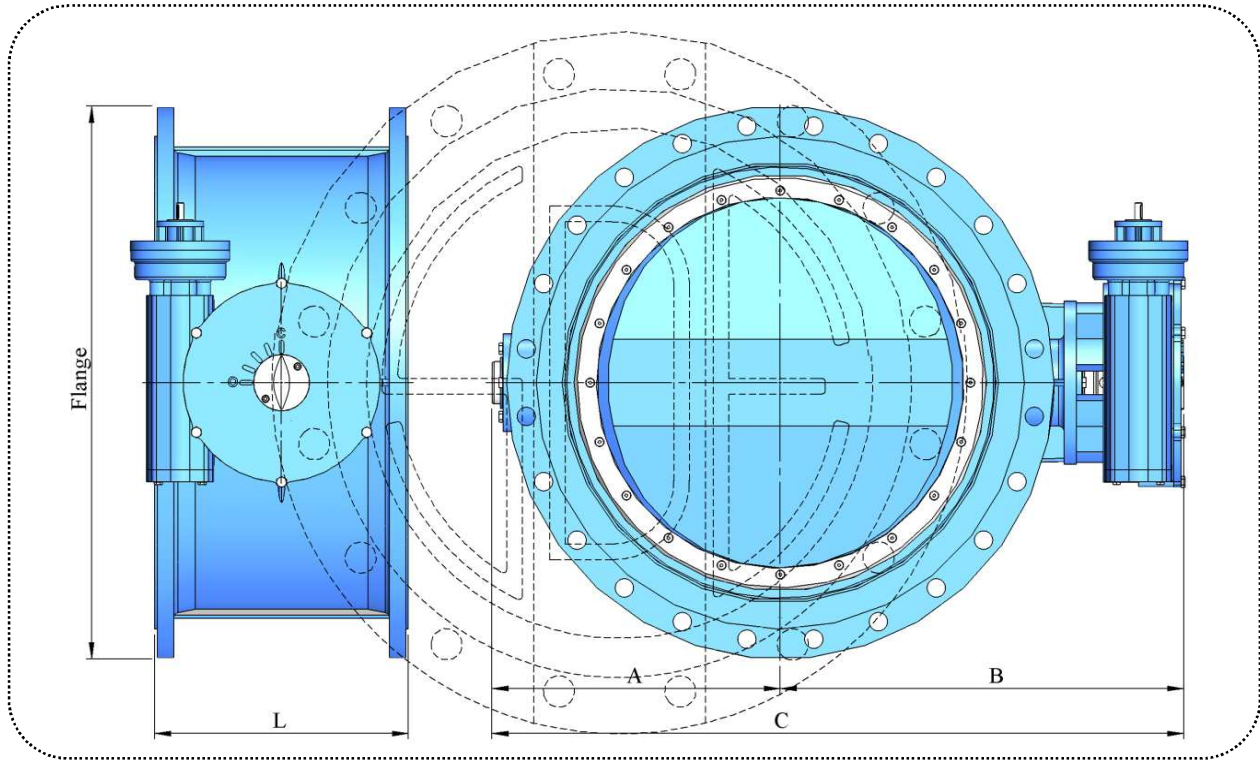
DN	L	PN 10				PN 16			
		A	B	C	Kg	A	B	C	Kg
200	152	170	323	493	68	170	323	493	69
250	165	198	352	550	92	203	358	560	95
300	178	223	390	612	117	230	398	628	121
350	190	253	432	684	156	260	440	700	160
400	216	283	485	767	202	290	493	783	209
450	222	308	533	840	275	320	546	866	286
500	229	335	562	897	303	358	586	943	328
550	248	363	591	953	337	389	640	1.029	413
600	267	390	620	1.010	367	420	673	1.093	456
650	280	419	672	1.091	458	438	713	1.150	532
700	292	448	702	1.150	511	455	731	1.186	640
750	305	483	761	1.243	599	485	784	1.269	729
800	318	508	787	1.295	739	513	814	1.326	821
900	330	558	882	1.440	959	563	909	1.471	1.154
1.000	410	615	943	1.558	1.267	628	978	1.605	1.459
1.050	440	643	994	1.638	1.425	653	1.047	1.699	1.644
1.100	440	671	1.024	1.695	1.590	678	1.073	1.751	2.012
1.200	470	728	1.084	1.811	1.582	743	1.163	1.906	2.034
1.300	510	788	1.169	1.956	2.108	793	1.238	2.030	2.438
1.400	530	838	1.243	2.080	2.424	843	1.291	2.133	2.775
1.500	575	893	1.322	2.215	2.909	910	1.383	2.293	3.683
1.600	600	958	1.412	2.370	3.459	965	1.484	2.449	4.360
1.700	635	1.008	1.529	2.537	4.560				
1.800	670	1.058	1.582	2.640	5.347				
1.900	715	1.110	1.680	2.790	6.444				
2.000	760	1.163	1.736	2.898	7.663				
2.100	805	1.219	1.838	3.057	9.928				
2.200	850	1.275	1.897	3.172	11.758				

BUTTERFLY VALVE

Body Length Standard : EN 558-1, S 14

Valve Standard : EN 593

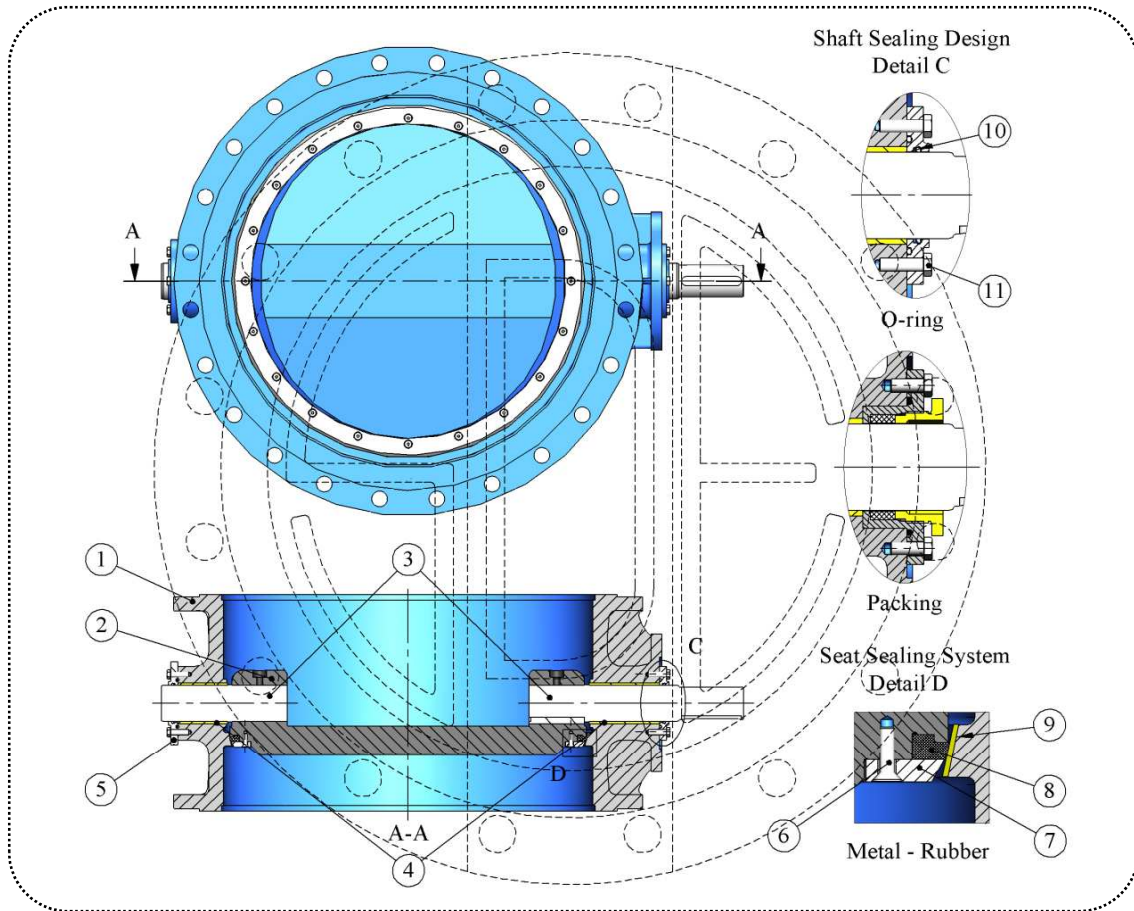
Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.



DIMENSIONS

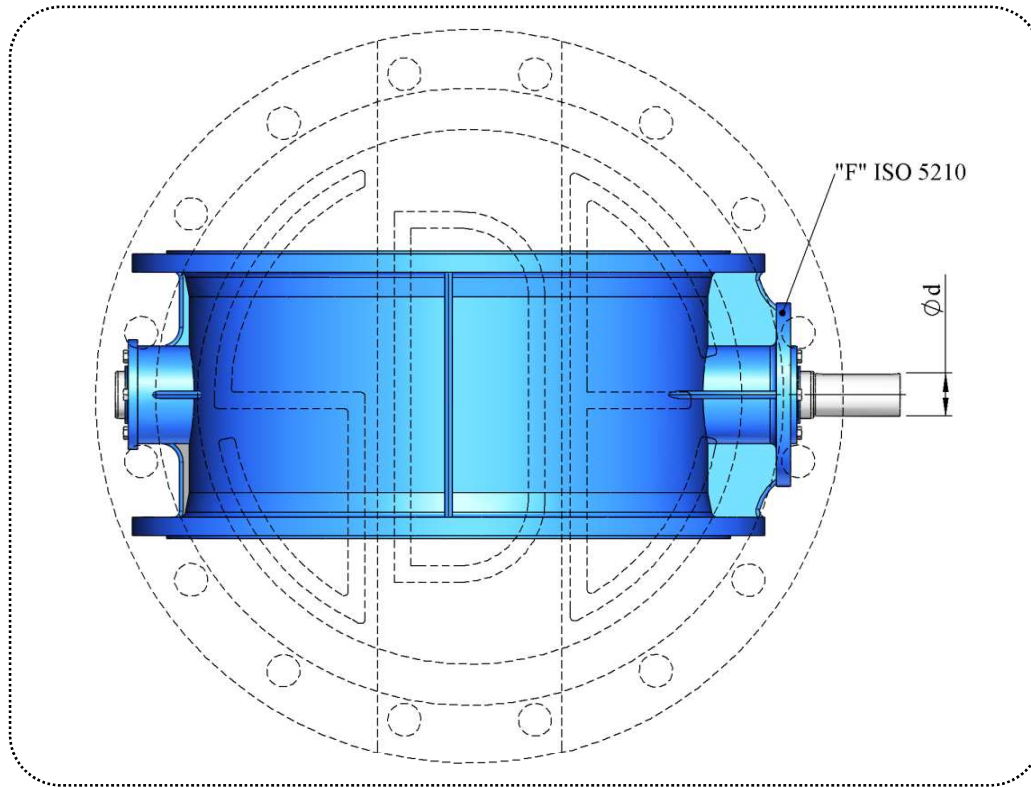
DN	L	PN 10				PN 16			
		A	B	C	Kg	A	B	C	Kg
200	230	170	323	493	70	170	323	493	71
250	250	198	352	550	96	203	358	560	98
300	270	223	390	612	122	230	398	628	126
350	290	253	432	684	162	260	440	700	166
400	310	283	485	767	209	290	493	783	216
450	330	308	533	840	284	320	546	866	295
500	350	335	562	897	315	358	586	943	340
550	370	363	591	953	349	389	640	1.029	427
600	390	390	620	1.010	380	420	673	1.093	471
650	410	419	672	1.091	473	438	713	1.150	549
700	430	448	702	1.150	529	455	731	1.186	661
750	450	483	761	1.243	619	485	784	1.269	752
800	470	508	787	1.295	761	513	814	1.326	846
900	510	558	882	1.440	993	563	909	1.471	1.190
1.000	550	615	943	1.558	1.295	628	978	1.605	1.493
1.050	570	643	994	1.638	1.455	653	1.047	1.699	1.678
1.100	590	671	1.024	1.695	1.628	678	1.073	1.751	2.056
1.200	630	728	1.084	1.811	1.792	743	1.163	1.906	2.277
1.300	670	788	1.169	1.956	2.358	793	1.238	2.030	2.727
1.400	710	838	1.243	2.080	2.745	843	1.291	2.133	3.145
1.500	750	893	1.322	2.215	3.256	910	1.383	2.293	4.085
1.600	790	958	1.412	2.370	3.881	965	1.484	2.449	4.847
1.700	830	1.008	1.529	2.537	5.044				
1.800	870	1.058	1.582	2.640	5.902				
1.900	910	1.110	1.680	2.790	7.049				
2.000	950	1.163	1.736	2.898	8.323				
2.100	990	1.219	1.838	3.057	10.649				
2.200	1.030	1.275	1.897	3.172	12.544				

BUTTERFLY VALVE



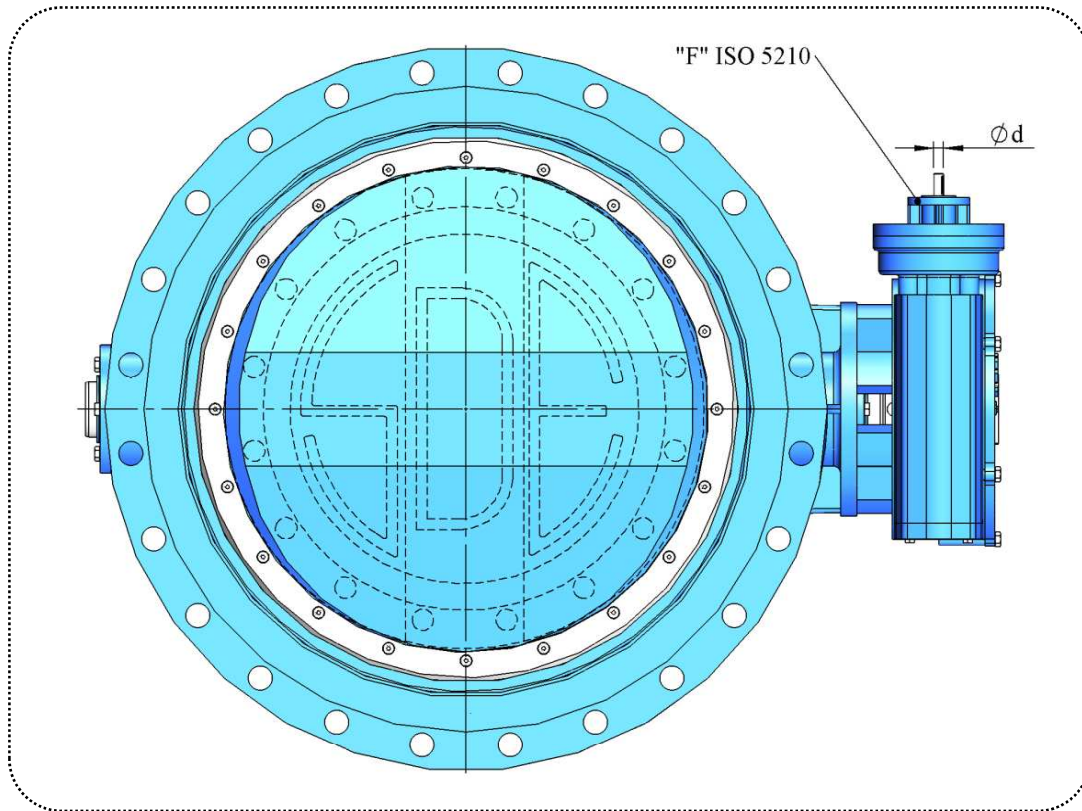
No	Item Name	Material	Description	EN Standard	Material No
1	Body	GGG 40	Ductile Iron	EN-GJS-450-15	0.7040
		GGG 50		EN-GJS-500-7	0.7050
		ST 37-2	Steel Construction	EN 10025	1.0037
2	Disc	GGG 40	Ductile Iron	EN-GJS-450-15	0.7040
		GGG 50		EN-GJS-500-7	0.7050
		304	Stainless Steel Casting	G - X6CrNi 18-9	1.4308
		316		G - X6CrNiMo 18-10	1.4408
		CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
3	Shafts	420	Stainless Steel	X20Cr13	1.4021
		304		X5CrNi 18-10	1.4301
		316		X5CrNiMo17-12-2	1.4401
		431		X17CrNi16-2	1.4057
4	Bearings	CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
5	Shaft Covers	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
6	Retainer Ring Bolts	A2 - A4	Stainless Steel	-	-
7	Retainer Ring	304	Stainless Steel	X5CrNi 18-10	1.4301
		316		X5CrNiMo17-12-2	1.4401
		CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
8	Disc Ring	NBR - EPDM	Rubber	-	-
9	Body Seat	316 L	Stainless Steel Welding	12072	1.4430
		CuAl8	Aluminium Bronze Welding	14640 S Cu 6100	2.0921
10	Shaft and Cover Sealing	NBR - EPDM	Rubber	-	-
		Packing*	Non Asbestos	Only for shaft sealing	
11	Bolt of Covers	Galvanized	Steel	-	-
		A 2 - A 4	Stainless Steel	-	-
Coating		WRAS approved fusion bonded epoxy. 300 microns dft as standard.			
Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.					

OPERATION OF BARE SHAFT BUTTERFLY VALVES



DN	PN 10			PN 16			PN 20			PN 25			PN 40		
	F	d	Torque Nm	F	d	Torque Nm	F	d	Torque Nm	F	d	Torque Nm	F	d	Torque Nm
200	12	25	296	12	25	335	12	25	360	12	25	393	12	25	533
250	12	25	462	12	25	523	12	25	597	12	25	656	14	35	901
300	12	25	863	12	25	965	14	35	1.081	14	35	1.179	14	35	1.665
350	14	35	1.207	14	35	1.366	14	35	1.604	14	35	1.770	16	50	2.530
400	14	35	1.971	14	35	2.231	16	50	2.576	16	50	2.835	16	50	3.958
450	16	50	2.604	16	50	2.998	16	50	3.479	16	50	3.862	16	50	5.447
500	16	50	3.215	16	50	3.701	16	50	4.295	16	50	4.768	25	70	6.725
550	16	50	3.890	16	50	4.740	16	50	5.524	16	50	6.177	25	70	8.791
600	16	50	4.630	16	50	5.641	25	70	6.574	25	70	7.351	30	90	10.462
650	16	50	5.662	16	50	6.985	25	70	8.628	25	70	9.768	30	90	14.103
700	16	50	6.566	25	70	8.101	30	90	10.006	30	90	11.329	35	120	16.356
750	16	50	7.842	25	70	9.786	30	90	13.309	30	90	15.283	35	120	22.421
800	25	70	8.922	25	70	11.134	35	120	15.142	35	120	17.389	35	120	25.510
900	25	70	12.167	30	90	15.491	35	120	19.165	35	120	22.008	40	140	32.286
1.000	30	90	15.021	30	90	19.124	35	120	23.660	35	120	27.170	40	140	39.859
1.050	30	90	17.156	30	90	22.990	35	120	28.467	35	120	32.931			
1.100	30	90	18.828	35	120	25.231	35	120	31.242	35	120	36.142			
1.200	30	90	22.407	35	120	31.271	35	120	37.181	35	120	43.012			
1.300	35	120	27.210	35	120	38.161									
1.400	35	120	32.616	35	120	44.257									
1.500	35	120	38.656	40	140	52.749									
1.600	35	120	45.365	40	140	64.440									
1.700	40	140	55.894												
1.800	40	140	62.663												
1.900	40	140	73.717												
2.000	40	140	114.511												
2.100	48	160	94.816												
2.200	48	160	104.061												

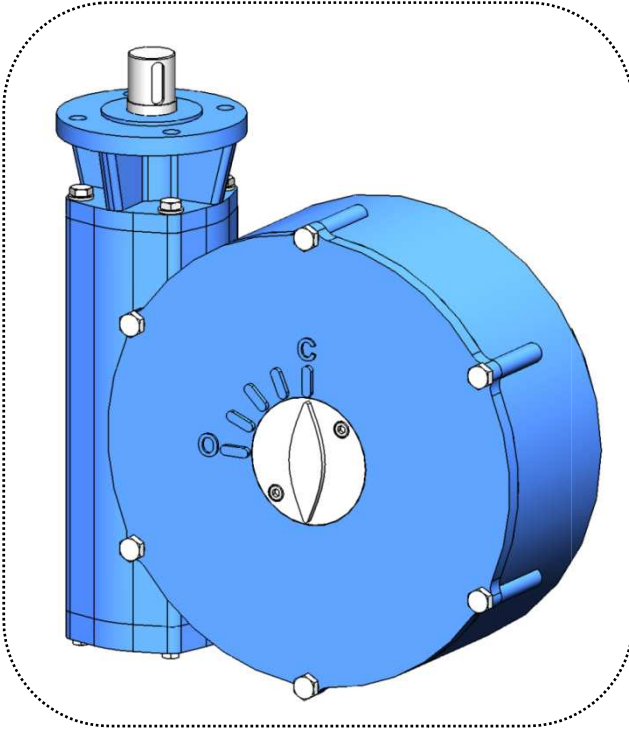
OPERATION OF BUTTERFLY VALVES



DN	PN 10					PN 16					PN 20				
	F	d	Torque Nm	Ratio	Number of turn	F	d	Torque Nm	Ratio	Number of turn	F	d	Torque Nm	Ratio	Number of turn
200	10	20	13	40	10	10	20	15	40	10	10	20	16	40	10
250	10	20	21	40	10	10	20	24	40	10	10	20	27	40	10
300	10	20	39	40	10	10	20	44	40	10	10	20	39	50	13
350	10	20	44	50	13	10	20	50	50	13	10	20	58	50	13
400	10	20	72	50	13	10	20	81	50	13	10	20	78	60	15
450	10	20	79	60	15	10	20	91	60	15	10	20	29	240	60
500	10	20	97	60	15	10	20	112	60	15	10	20	35	240	60
550	10	20	118	60	15	10	20	39	240	60	10	20	45	240	60
600	10	20	140	60	15	10	20	46	240	60	10	20	54	240	60
650	10	20	47	240	60	10	20	58	240	60	10	20	71	240	60
700	10	20	54	240	60	10	20	67	240	60	10	20	82	240	60
750	10	20	65	240	60	10	20	81	240	60	10	20	110	240	60
800	10	20	73	240	60	10	20	92	240	60	10	20	58	520	130
900	10	20	100	240	60	10	20	128	240	60	10	20	73	520	130
1.000	10	20	124	240	60	10	20	157	240	60	10	20	90	520	130
1.050	10	20	141	240	60	10	20	189	240	60	10	20	108	520	130
1.100	10	20	155	240	60	10	20	96	520	130	10	20	119	520	130
1.200	10	20	185	240	60	10	20	119	520	130	10	20	141	520	130
1.300	10	20	103	520	130	10	20	145	520	130					
1.400	10	20	124	520	130	10	20	168	520	130					
1.500	10	20	147	520	130	10	20	174	600	150					
1.600	10	20	172	520	130	10	20	212	600	150					
1.700	10	20	184	600	150										
1.800	10	20	206	600	150										
1.900	10	20	243	600	150										
2.000	10	20	377	600	150										
2.100	14	30	247	760	190										
2.200	14	30	271	760	190										

WORM GEARBOX

To be used for Butterfly Valves

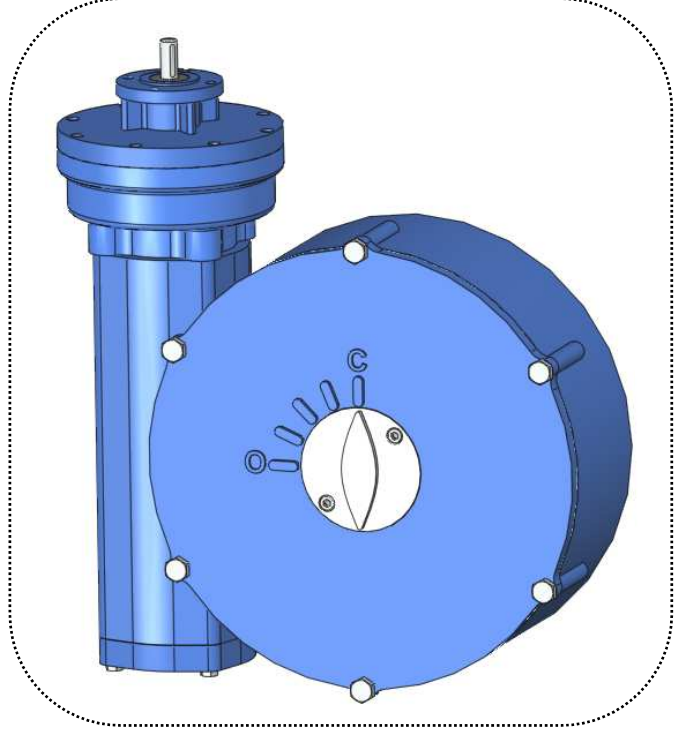


Product Code: TK,

For DN 600 PN 10 / DN 450 PN 25

or smaller Butterfly Valves

It is a type of gearbox consisting of a body, covers, helical gear and worm gear.



Product Code: TK, TKP

For DN 600 PN 16 / DN 500 PN 25

and greater Butterfly Valves

It is a type of gearbox consisting of a body, covers, helical gear, worm gear and planet gears.

Gearboxes are used for valves which require high torque values for operation.

Additional gearbox is used for bigger valves which require higher torque values.

It is possible to operate the valve with lower force but higher number of turns.

Properties of gearbox,

Input force required to operate the valve can easily be applied by one person. To achieve output force, suitable gear ratio is selected.

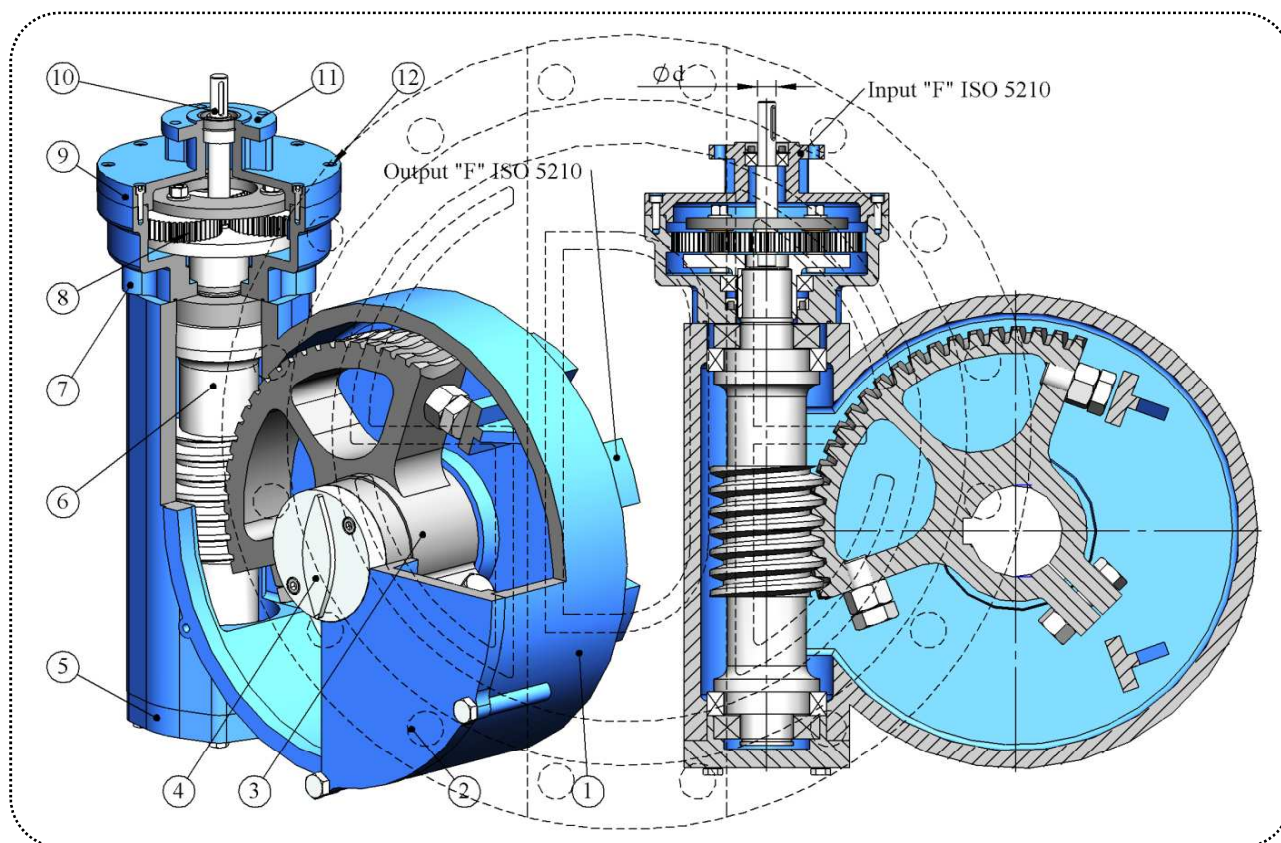
Input and output flanges and shafts are manufactured in accordance with ISO 5210 F standards.

Thus, gearbox can be mounted to another valve with same size, or gearbox can be removed and another brand can be mounted instead. If required, a suitable size actuator can be fitted or existing one can be changed with another brand.

Maintenance,

No maintenance is needed except lubricating gears.

WORM GEAR BOX, for BUTTERFLY VALVE



PARTS

No	Item Name	Material	Description	EN Standard	Material No
1-2	Body and Front Cover	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
3	Worm Gear	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
4-5	Indicator, Bottom Cover	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
6	Helical Gear	1050	Steel	100083-3	1.1191
7-9	Top Body, Top Cover	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
8	Gears	1050	Steel	100083-3	1.1191
10	Pinion Gear	420	Stainless Steel	X20Cr13	1.4021
		304		X5CrNi 18-10	1.4301
11	Actuator Flange	1050	Steel	100083-3	1.1191
12	Bolts	Galvanized	Steel	-	-
		A 2, A 4	Stainless Steel	-	-

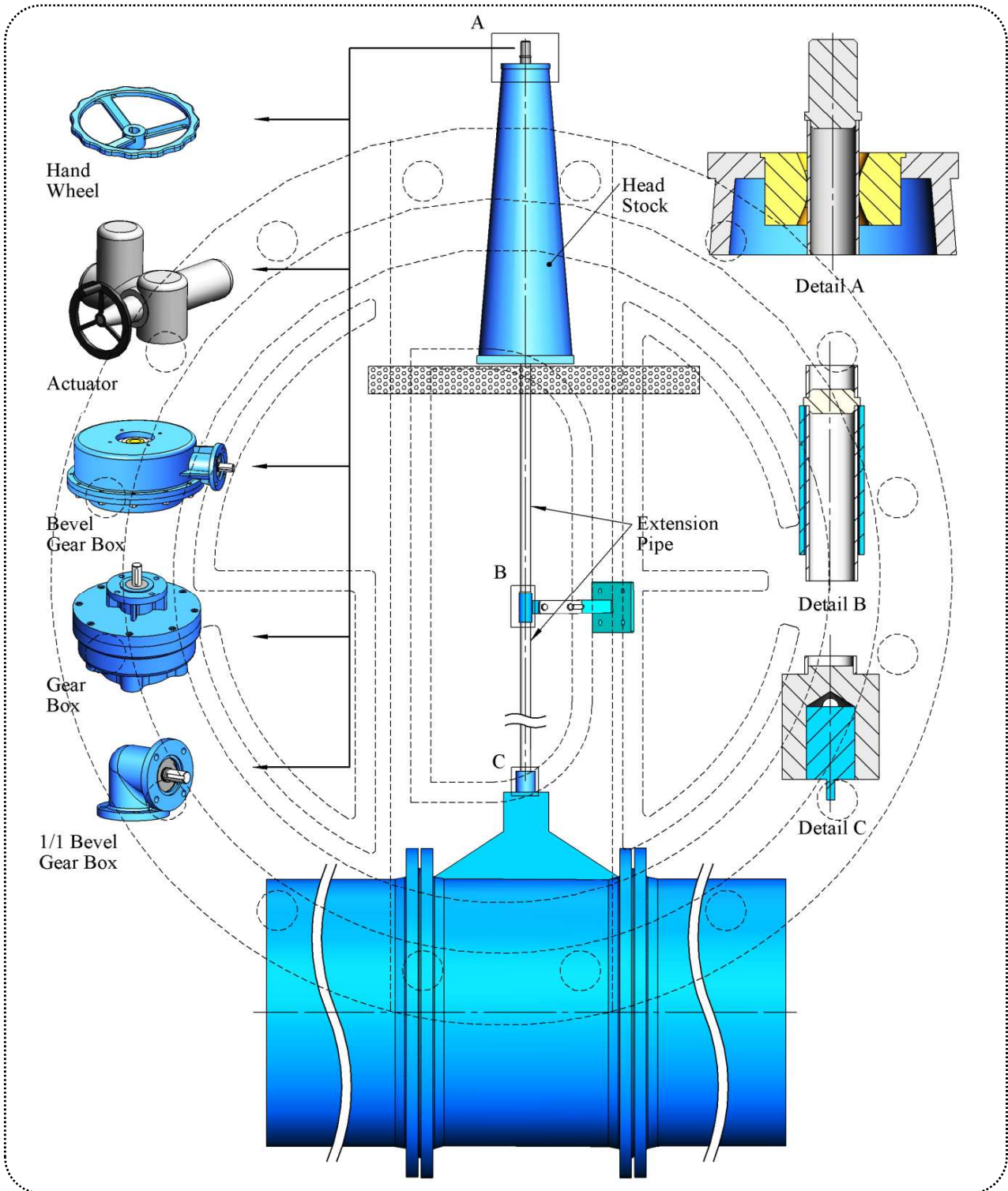
Coating WRAS approved fusion bonded epoxy. 300 microns dft as standard.

Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.

TECHNICAL INFORMATION

No	INPUT					RATIO		OUTPUT			Total Kg
	"F"	"d"	Torque Nm	Total Ratio	Open to Close	Worm Gear Box	Planet	"F"	"D"	Torque Nm	
1	10	20	6	45	11	45	1	10	22	140	11
2	10	20	35	40	10	40	1	12	25	700	19
3	10	20	64	50	13	50	1	14	35	1.600	34
4	10	20	32	240	60	60	4	16	50	3.800	62
5	10	20	44	240	60	60	4	25	70	5.300	111
6	10	20	78	240	60	60	4	30	90	9.400	207
7	10	20	69	520	130	65	8	35	120	18.000	386
8	10	20	123	600	150	75	8	40	140	37.000	724
9	14	30	171	760	190	95	8	48	160	65.000	1.364
10	14	30	171	960	240	120	8	56	180	82.000	2.579

HEADSTOCK



Headstock consists of a cast body, extension spindles and guide brackets holding the spindles.

According to usage area of valve, it can be installed at first floor but operational equipments can be at second floor.

Valve can be in a dirty or humid environment and operational equipments may not be requested to be at the same place.

For such conditions, headstock accessory can be used for any kind of valve.

Valve is located where it has to be, but operational equipments are located at a clean area.

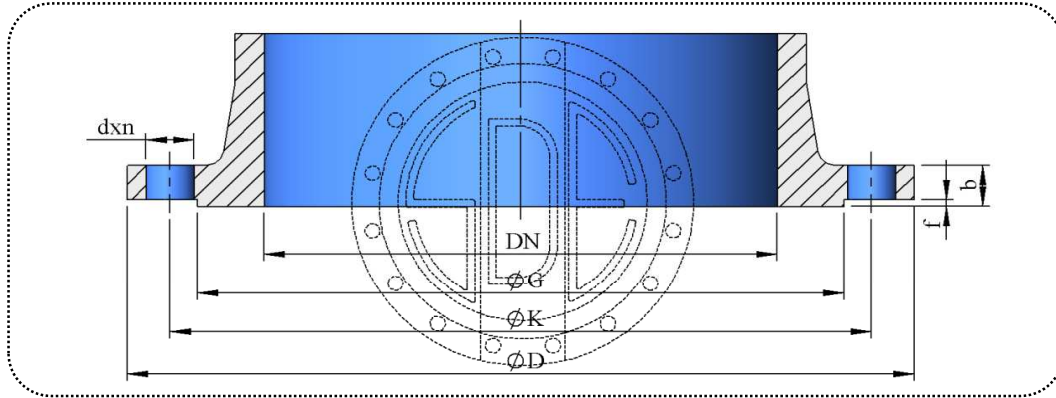
Headstock is fixed on floor by screws. Extension spindles are between valve and headstock.

If space between valve and headstock is more than 3 meters, guide brackets are used to hold spindle and eliminate oscillation.

It is advised to use one guide bracket for each 3 meters.

Upon request, extension spindles can be made of plain carbon steel or stainless steel.

FLANGE DIMENSIONS



Nominal Dia	Outside Dia	Raised Face		Flange Holes			Flange Thickness	Outside Dia	Raised Face		Flange Holes			Flange Thickness
		Dia	Height	Circle Dia.	Dia	Num ber			Dia	Height	Circle Dia.	Dia	Num ber	
DN	D	G	f	K	d	n	b	D	G	f	K	d	n	b
PN 10								PN 16						
100	220	158	3	180	19	8	19	220	158	3	180	19	8	19
125	250	188	3	210	19	8	19	250	188	3	210	19	8	19
150	285	212	3	240	23	8	19	285	212	3	240	23	8	19
200	340	268	3	295	23	8	20	340	268	3	295	23	12	20
250	395	320	3	350	23	12	22	405	320	3	355	28	12	22
300	445	370	4	400	23	12	25	460	378	4	410	28	12	25
350	505	430	4	460	23	16	25	520	438	4	470	28	16	27
400	565	482	4	515	28	16	25	580	490	4	525	31	16	28
450	615	532	4	565	28	20	26	640	550	4	585	31	20	30
500	670	585	4	620	28	20	27	715	610	4	650	34	20	32
600	780	685	5	725	31	20	30	840	725	5	770	37	20	36
700	895	800	5	840	31	24	33	910	795	5	840	37	24	40
800	1.015	905	5	950	34	24	35	1.025	900	5	950	41	24	43
900	1.115	1.005	5	1.050	34	28	38	1.125	1.000	5	1.050	41	28	47
1.000	1.230	1.110	5	1.160	37	28	40	1.255	1.115	5	1.170	44	28	50
1.200	1.455	1.330	5	1.380	41	32	45	1.485	1.330	5	1.390	50	32	57
1.400	1.675	1.535	5	1.590	44	36	46	1.685	1.530	5	1.590	50	36	59
1.500	1.785	1.640	5	1.700	44	36	48	1.820	1.640	5	1.710	57	36	63
1.600	1.915	1.760	5	1.820	50	40	49	1.930	1.750	5	1.820	57	40	65
1.800	2.115	1.950	5	2.020	50	44	52	2.130	1.950	5	2.020	57	44	69
2.000	2.325	2.150	5	2.230	50	48	55	2.345	2.150	5	2.230	62	48	73
2.200	2.550	2.370	5	2.440	57	52	59	2.555	2.360	5	2.440	62	52	80
PN 25								PN 40						
100	235	162	3	190	23	8	19	235	162	3	190	23	8	19
125	270	188	3	220	28	8	19	270	188	3	220	28	8	24
150	300	218	3	250	28	8	20	300	218	3	250	28	8	26
200	360	278	3	310	28	12	22	375	285	3	320	31	12	30
250	425	335	3	370	31	12	25	450	345	3	385	34	12	35
300	485	395	4	430	31	16	28	515	410	4	450	34	16	40
350	555	450	4	490	34	16	30	580	465	4	510	37	16	44
400	620	505	4	550	37	16	32	660	535	4	585	41	16	48
450	670	548	4	600	37	20	34	685	560	4	610	41	20	50
500	730	615	4	660	37	20	37	755	615	4	670	44	20	52
600	845	720	5	770	41	20	42	890	735	5	795	50	20	58
700	960	820	5	875	44	24	47	995	840	5	900	50	24	63
800	1.085	930	5	990	50	24	51	1.140	960	5	1.030	57	24	68
900	1.185	1.030	5	1.090	50	28	56	1.250	1.070	5	1.140	57	28	73
1.000	1.320	1.140	5	1.210	57	28	60	1.360	1.180	5	1.250	57	28	80
1.200	1.530	1.360	5	1.420	57	32	69	1.575	1.385	5	1.460	62	32	88
1.400	1.755	1.570	5	1.640	62	36	74	1.795	1.600	5	1.680	62	36	98
1.500	1.865	1.680	5	1.750	62	40	75	1.910	1.700	5	1.790	70	40	102
1.600	1.975	1.790	5	1.860	62	40	81	2.025	1.815	5	1.900	70	40	108
1.800	2.195	2.000	5	2.070	70	44	88							
2.000	2.425	2.230	5	2.300	70	48	95							